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10/814,377	03/31/2004	Frank Liebenow	P2006US00	5487

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EXAMINER
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TSEGAYE, DANIEL

ART UNIT	PAPER NUMBER
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2629

MAIL DATE	DELIVERY MODE
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09/10/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/814,377	Applicant(s) LIEBENOW, FRANK	
	Examiner DANIEL TSEGAYE	Art Unit 2629	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 June 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04/16/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Response to Amendment***

1. *The amendment filed on 06/08/2007 has been entered and considered by the examiner.*

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1,2-3,5-6,8,11-14,16,18-21,23-25 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Mikkelsen (U.S Pat# 6,559,820).

As to claim 1, Mikkelsen disclose a method for digitizing data, comprising:

setting an element (200) of an electronic ink display to one of a plurality of display states (e.g. black or white, see col.6, lines 9-11, and lines 32-34);

modifying (the display state (black or white) of the element (200) by writing to the display with an external device (e.g. hand or stylus (340), see col.5, lines 54-58, and col.7, line 67); and

electronically reading the element to determine if the display state has been modified (e.g., image storage properties of the gyricon act to retain the charge once the display state is changed to black)(see col. 6, lines 5-11, col. 9, lines 21-30).

As to claim 14, this claim differs from claim1 only in the limitation "bistable display element to one of predetermined states wherein the display state of the element persists in a

Art Unit: 2629

power down or power off mode of the display after the element has been set” is additionally recited. Mikkelsen clearly teaches bistable (e.g. black or white states remains in one of two states until it disrupted, see col.6, lines 2-11) display element (200) to one of predetermined states (e.g. black or white states) wherein the display state of the element persists in a power down (e.g. potential reduced) or power off (e.g. potential set to zero) mode of the display after the element has been set (see col. 9, lines 39-47).

As to claim 30, this claim differs from claim 14 only in the limitation “ computer readable medium having computer executable instructions for performing a method for digitizing data written to an electronic ink display, the computer readable medium including instructions operable to cause at least one programmable processor” is recited. Mikkelsen teaches electronic paper can be used in a computer system display screen (see col.1, lines 52-53). Thus a computer system has a storage medium tangibly embodying program instruction and at least one programmable processor.

As to claim 36, Mikkelsen teaches a method of operating an electronic ink display having bistable display elements, including:

writing an image (e.g., dragging a finger or stylus on the transparent insulative layer, see col. 5, lines 54-56) to the electronic ink display by setting the states of the bistable (black or white state, see col.6, lines 9-11 and lines 31-34).

display element using data stored in a display memory (e.g., the charge stored in transparent insulative layer (110), see col.5, line 66 to col.6 line 1);

entering a power down mode wherein the image persists on the display (e.g., potential reduced to avoid unwanted rotation or the image persist on the display, see col. 9, lines 39-41);

receiving modifications to the image on the electronic ink display from a user externally applying charge to selected bistable display elements with a handheld device (i.e. the action of dragging a finger on the transparent insulative layer), said modifications being visible on the display but not yet stored in the display memory (e.g., the insulative layer is the display memory because it's temporary memory);

reading the states of the bistable display elements in response to receiving a command to initiate a store procedure (e.g., detect the change of black or white state and store it in the insulative layer); and

updating the display memory with the states of the bistable display elements (e.g., change from black state to white state) such that a modified image is stored in the display memory (i.e. the white state persist (stored) in the insulating layer, see col.5, line 66 to col.6 line 1).

As to claim 2, Mikkelsen disclose the external device comprising a hand held charged device (340).

As to claim 3, Mikkelsen teaches reading (e.g., image storage properties of the gyricon act to retain the charge once the display state is changed to black)(see col. 6, lines 5-11, col. 9, lines 21-30) the element to determine if the display state has been modified (e.g. causing the rotating element to face one portion toward the surface, see col.5, lines 60-62) comprising detecting an electrical property (e.g. charge that can cause to activate or rotate the rotatable

Art Unit: 2629

element, see col.5, lines 58-60) related to the display state of the element (black or white state, see col.6, lines 9-10 and lines 31-32).

As to claims 5 and 20, Mikkelsen teaches the electrical property comprises an impedance (see col. 11, line 46).

As to claims 6 and 21, Mikkelsen teaches the electrical property comprises a capacitance (see col.6, lines 39-40).

As to claim 8, Mikkelsen teaches the electrical property is detected (e.g. stylus moving across the display), at least in part, by application of a probe signal (e.g. charge, see col. 5, lines 36-39).

As to claim 11, Mikkelsen teaches the display state of the element (e.g. black or white state) is sustained in a power down (e.g. potential reduced) or power off (e.g. potential set to zero) mode of the electronic ink display after the element has been set (e.g. once the rotatable element set either to black state or white state remains in one of the two state, see col.9, lines 39-44).

As to claim 12, Mikkelsen teaches reading (e.g., image storage properties of the gyrricon act to retain the charge once the display state is changed to black)(see col. 6, lines 5-11, col. 9, lines 21-30) the element (200) to determine if the display state has been modified (e.g. write on the display using fingers, see col. 5, lines 54-58) comprises referring to one or more models (e.g. change in voltage, see from col.7 line 67 to col.8 lines 1-2).

As to claims 13 and 18, Mikkelsen teaches reading the element to determine if the display state has been modified is performed using a grid (e.g. 350, see col.7, lines 18-20) that is also used in setting the element (e.g. black or white, see col.6, lines 9-11, and lines 32-34).

As to claim 16, Mikkelsen teaches determining whether the display state (e.g. black or white state) has been modified (e.g. write on the display using fingers, see col. 5, lines 54-58) by the external device (340).

As to claim 19, Mikkelsen teaches reading the element of the display to obtain a display state (black or white state, see col.6, lines 9-10 and lines 31-32) comprises probing to detect an electrical property of the element (see col.5, lines 59-62).

As to claim 23, Mikkelsen teaches the display state is determined, at least in part, by reference to a model (e.g. change in voltage, see col.7 line 67 and col.8 lines 1-2).

As to claim 24, Mikkelsen teaches the model accounts for variables comprising environmental variables (e.g. pressure such as touch of a finger or the force applied by the stylus, see col.5, lines 58-59, temperature (heat), due to rate of charge dissipation, see col.6 lines 49-50).

As to claim 25, Mikkelsen teaches the model accounts for variables comprising process variables (e.g. change in voltage supply, see col.8 lines 1-2, change from one display element to another display element that is from white to black, see col.4, lines 58-61).

As to claim 37, Mikkelsen teaches wherein said command to initiate a store procedure is initiated by the user (e.g., dragging finger or stylus cause it to rotate the gyricon element to particular direction, see col. 5, lines 57-62).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a

Art Unit: 2629

person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 15, 26 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mikkelsen in view of Perrone (U.S Pat#6,603881).

As to claim 26, Mikkelsen discloses a system for digitizing data written to an electronic ink display comprising:

means (electronic paper) for setting an element of the electronic ink display array (e.g. pixel or sub pixel, see col.4, lines 36-38) to one of a plurality of predetermined display states (e.g., black or white states, see col.6, lines 9-10 and lines 31-32) from display data stored (written information see col. 5 lines 57-62) in memory;

means (340) for modifying the display state (e.g. write on the display using fingers, see col. 5, lines 54-58) of the element by writing to the electronic ink display with an external device;

means Image storage properties for electronically reading the element of the electronic display array to determine the display state (see col.6, lines 5-11). Mikkelsen do not teaches means for writing the display state read for the element to memory. Perrone teaches, means (30) for writing the display state (e.g., recognition state) read for the element to memory (see col.5, lines 15-19).

Therefor, It would have been obvious to one of ordinary skill in the art at the time the invention was made to have added writing display state to memory as taught by Perrone to the electronic paper of Mikkelsen because recorded strokes in memory of Perrone can be stored and organized for recognition, and the corresponding recognition results can be accurately placed in the correct spatial context for subsequent display (see col.7, lines 6-15 of Perrone).



As to claim 27, this claim differs from claim 26 only in the limitations "common electrode and a grid of addressable electrode", " a display driver" and " detection circuit" is additionally recited. Mikkelsen teaches the array of display elements interposed between a common electrode (350)(see col.7, lines 57-60) and a grid of addressable electrode elements (330)(see col.7, lines 32-35). Perrone teaches that the output device (40) is a display device. It is clear that the display device (40) must have a display driver for driving the display; otherwise the display (40) cannot display image. Perrone also teaches that an identification and detection circuit (35) operatively connected to the electronic ink display to determine the display state of the at least one display element of the electronic ink display (see col.5, lines 8-12 and col.6, lines 23-33).

As to claim 15, Perrone teaches updating a display memory (31) with the display state (e.g. updating new recognition state depends on a strokes associated to new recognition result, see col.5, lines 13-19 and col.6 lines 30-37).

As to claim 28, Perrone teaches the identification and detection circuit (35) as previously discussed with respect to claim 27 above.

6. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mikkelsen in view of Ho (U.S Pub # 2005/0024318).

As to claim 35, Mikkelsen does not teach a digitize function key to activate the identification and detection circuit. Ho teaches key (15) to activate the a power circuit (i.e. the power circuit could be replaced with any other circuit by a person ordinary skill in the art (see [0014] and [0029])).

Therefore, it would have obvious to one of ordinary skill in the art at time the invention was made to have provided with key to activate the power circuit as taught by Ho to the electric paper of Mikkelsen because pressing a key of the keypad enable to activate or deactivate the backlight (see Abstract).

7. Claims 4,7,9,10,17,22 and 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mikkelsen in view of Jacobson.

As to claim 4, note the discussion of Mikkelsen above. Mikkelsen does not teach measuring the electrical current. Jacobson teaches reading the element to determine if the display state has been modified (e.g., electrical signal addressing the electrodes, see [0037]) comprising measuring the electrical current required to reset the element to a predetermined display state (e.g., dark or light display state, see [0036]; [0037], [0042]; [0044] and [0048]).

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to have provided reading the element to determine if the display state has been modified comprises measuring the electrical current required to reset the element to a predetermined display state as taught by Jacobson to electrophoretic display of Mikkelsen it would provide the benefit of decaying the image quickly once the addressing voltage to the display is removed, thereby the update image can be viewed in sufficient time (see [0006] of Jacobson).

As to claim 7, Jacobson teaches the electrical property comprises an electrical current (see [0037]).

As to claim 9, Jacobson teaches wherein reading the element to determine if the display state has been modified (e.g., electrical signal addressing the electrodes, see [0037])

Art Unit: 2629

comprises measuring the current required to reset the element to a display state stored for the element in memory (see [0039]).

As to claim 10, Jacobson teaches reading the element to determine if the display state has been modified (e.g., electrical signal addressing the electrodes, see [0037]) comprises measuring the current required to set the element to a display state (see [0048]) that represents the inverse of a display state (e.g., dark state see [0044]) stored for the element in a memory followed by resetting the element to a display state (e.g., light state, see [0044]) stored for the element in the memory (e.g., ROM or PROM, see [0039]).

As to claim 17, Jacobson teaches reading the element of the display to obtain a display state comprises resetting the element to a predetermined reset state (e.g. dark or light, see [0044]), and measuring the current required to perform the reset operation (see [0048] (see [0036]; [0037] and [0042]; [0048]).

As to claim 22, Jacobson teaches the electrical property is determined, at least in part, by application of a small signal alternating current to the display element (e.g., applying alternating current to the pixels, see [0070]).

As to claim 31, note the discussion of Mikkelsen and Perrone above, Mikkelsen and Perrone do not teach the computer executable instructions to cause the at least one programmable processor to read the element comprise instruction to detecting an electrical property related to the display element (e.g., the circuitry for sensing the state of individual display element, see [0036]). Jacobson teaches read operation comprises detecting an electrical property related to the display element (e.g., plurality of pixels)(see [0070]).

As to claim 32, Jacobson teaches the computer executable instructions to cause the at least one programmable processor to read the element comprise instruction to measuring an electrical current required to reset the element to a predetermined display state (e.g. dark or light, see [0044]) (see [0036]; [0037] and [0042]; [0048]).

As to claim 33, Jacobson teaches the computer executable instructions to cause the at least one programmable processor to read the element comprise instruction to measuring an electrical current required to reset the element to a display state (e.g., electrical characteristic is compared to determined the state so it can be reset or manipulate, see [0042]) stored for the element in memory (see [0039]).

As to claim 34, Jacobson teaches the computer executable instructions to cause the at least one programmable processor to read the element comprise instructions to measure a current required to:

set the element to a display state (see [0048]) that represents the inverse of the display state (e.g., dark state see [0044]) stored for the element in memory followed by resetting the element to the display state (e.g., light state, see [0044]) stored for the element in the memory (e.g., ROM or PROM, see [0039]).

8. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mikkelsen in view of Perrone as applied to claim 27 above, and further in view of Jacobson.

As to claim 29, note the discussion of Mikkelsen and Perrone above. Mikkelsen and Perrone do not teach a circuit to measure an electrical current. Jacobson teaches the

Art Unit: 2629

identification and detection circuit (930) for measuring an electrical current required to perform one or more set operation by the display device (see [0070]).

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to have provided the measure electrical current circuit as taught by Jacobson to the electric paper display of Mikkelsen as modified by Perrone because it would provide the benefit of decaying the image quickly once the addressing voltage to the display is removed, thereby the update image can be viewed in sufficient time (see [0006] of Jacobson).

9. Claims 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mikkelsen in view of Parker (U.S Pat # 683,6432).

As to claim 38, Mikkelsen teaches wherein said command to initiate (e.g., to activate using finger, see col 5, lines 54-56). Mikkelsen do not teach a store procedure is initiated automatically by a timer. Parker teaches a store procedure is initiated automatically by a timer (e.g., the processor (605), can be programmed to initiate the store procedure automatically by a timer).

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to have provided with a store procedure is initiated automatically by a timer as taught by Parker to electrophoretic display of Mikkelsen because an intelligent subsystem that separately supporting inking functions in order to allow stroke-ignorant software to be supported in stylus driven environment (see col. 2, lines 42-45).

As to claim 39, Mikkelsen teaches wherein said step of reading the states of the bistable display elements includes setting each bistable display element to a

Art Unit: 2629

predetermined state (e.g., black or white state) and measuring the current required to perform each operation to determine the state of the element prior to being set to said predetermined state (e.g., to determine low electric current, first it has to read the current)(see col. 2, lines 62-64, col. 3, lines 45-47 and col. 6, lines 23-29). Mikkelsen do not teach wherein said method further comprises restoring the modified image to the display following setting the bistable display elements to a predetermined state by setting the states of the bistable display elements using the updated data stored in the display memory. Parker teaches wherein said method further comprises restoring the modified image to the display following setting the bistable display elements to a predetermined state by setting the states of the bistable display elements using the updated data stored in the display memory (e.g., the display memory granted a request for data update at any time, see col. 4, lines 18-20).

### ***Response to Arguments***

**10.** Applicant's arguments filed 06/08/2007 have been fully considered but they are not persuasive.

In view of amendment, the new limitation "electronically reading is interpreted as the rotatable element is maintained the same state either by controlling the conductive of the channel or conversely the resistivity of the channels (see col. 6, lines 5-11 and col.9, lines 21-30).

On page 2, paragraph 3 the applicant argues that Mikkelsen does not teach or suggest electrically reading the element to determine if the display state has been modified. Mikkelsen clearly teaches electronically reading the element to determine if the display state has been

Art Unit: 2629

modified (see col. 6, lines 5-11). The claimed "electronically reading element" is so broad that it reads on the acts of image storage properties of the gyricon after the display state is changed (e.g., black) so that it can maintain the same state until it is disrupted by a subsequent opposite electric field.

As to claim 30, on page 4, paragraph 3, the applicant argues that Mikkelsen does not teach or suggest a computer readable medium including instructions operable to cause at least one programmable processor to read an element to determine the display stat, and store the display state read in memory. However, Mikkelsen teaches electric paper can be used in computer system. The computer of Mikkelsen can drive (or read) the element to display the image (i.e. display state). The displayed image can be stored in the memory as conventional way. Thus claimed "read element" and "stored data" as recited in the claim are broad enough to read on the device of Mikkelsen.

On page 4, last paragraph the applicant argues " the charge cause a rotatable element to rotate is not the same as detecting on electrical property related a display state". However, examiner now interprets the new limitation "electronically reading" as a "rotatable maintained same state after its modified". The display state is detected if a sudden change in potential. (see, col. 9, lines 54-67).

On page 6, paragraph 1 the applicant argues that Mikkelsen does not teach or suggest electronically reading or digitizing handwriting or other images. The Perrone reference is not concerned with, and does not even suggest the use of, the display (electric paper) of the Mikkelsen reference. Mikkelsen clearly teaches electronically reading as discussed above and in the office action. Perrone clearly teaches display such as electronic ink can be used to

recorded handwritten stroke or information on PDA. Both Mikkelsen and Perrone's devices are handheld device. Thus it is proper to combining Mikkelsen and Perrone.

On page 7, paragraph 4 the applicant argues that; 1) Mikkelsen does not disclose an electrophoretic display, as suggested; 2) the "reason" presumes that the "reading electrophoretic display" technology of the Jacobson reference is technically compatible with the gyricon rotatable element display technology of the Mikkelsen reference; and 3) "decaying the image quickly once the addressing voltage to the display is removed, thereby the update image can be viewed in sufficient time. In regard of the first arguments, both Mikkelsen and Jacobson teach encapsulated bistable state. In regard of the second argument, since both references teach about encapsulated bistable state [0006] in Jacobson and col. 6, lines 5-11 in Mikkelsen. Thus, it would have been obvious to combine both references. In regard of the third argument, it's logical to combine Mikkelsen and Jacobson because decaying the image quickly once the addressing voltage to the display is removed for changing the bistable state from white to black or from black to white.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not



mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### **Inquiries**

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL TSEGAYE whose telephone number is 571 270-1715. The examiner can normally be reached on Monday-Friday, 8:00:00 EST.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, CHANH NGUYEN can be reached on 571 272 7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/814,377  
Art Unit: 2629

Page 17

Daniel Tsegaye  
08/16/2007

  
CHANH D. NGUYEN  
SUPERVISORY PATENT EXAMINER